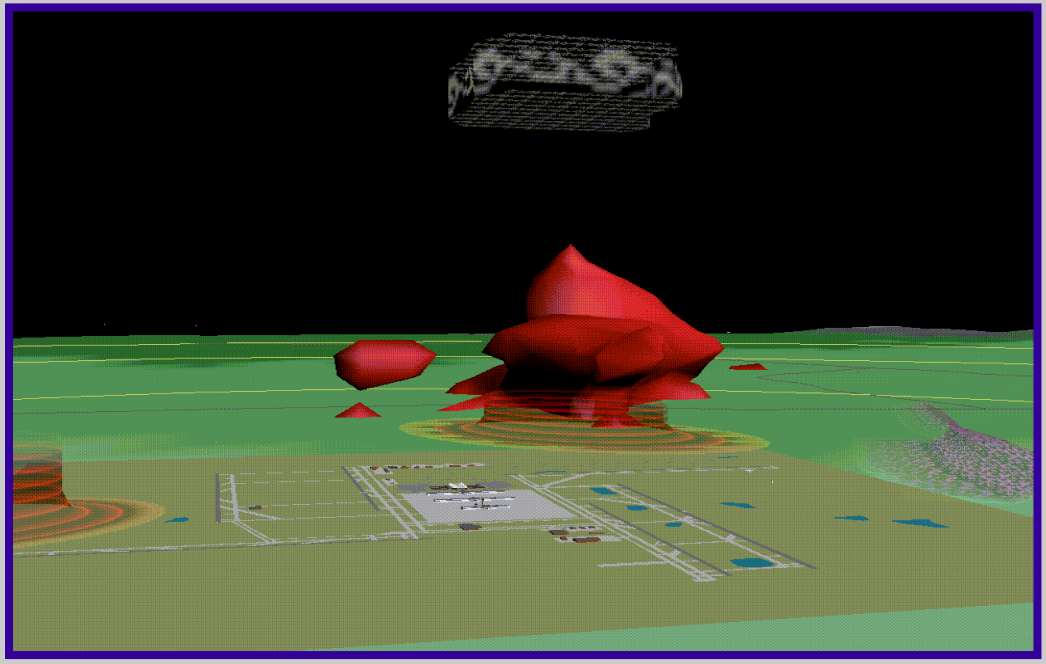
# Aviation Weather Research:
# What Is Being Done to Improve Safety and Reduce Delays?

## A Collaborative Approach

**Government and Universities**

Federal Aviation Administration
National Aeronautics and Space Administration
Department of Defense
National Oceanic and Atmospheric Administration
National Center for Atmospheric Research
Lincoln Laboratories



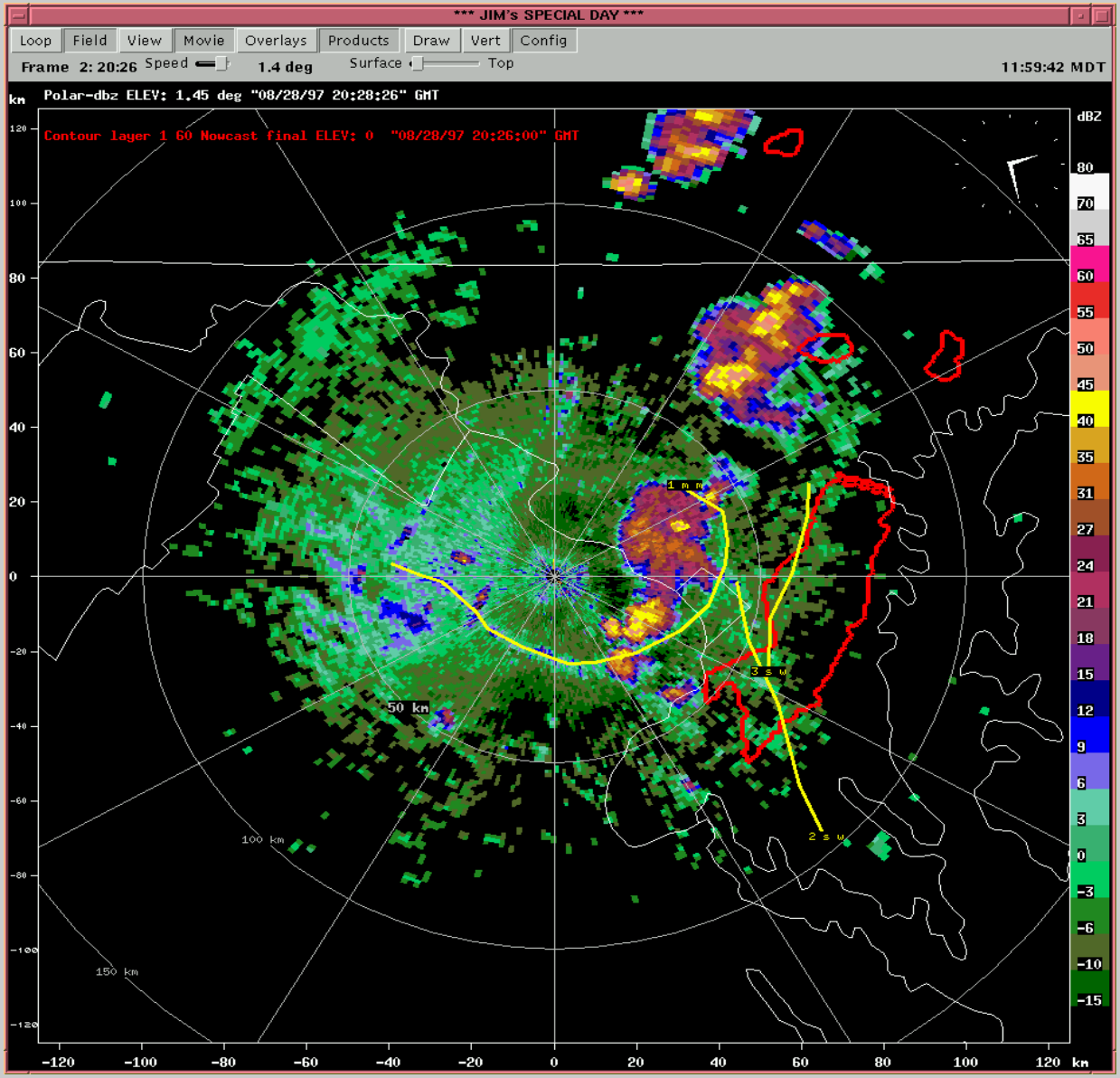
**Industry**

ARINC
Honeywell
Coherent Technologies
Teledyne
Rockwell Collins
Boeing
United Airlines
Northwest Airlines
American Airlines
Delta Airlines
Alaska Airlines
Atlantic Coast Airlines
U.S Airways
Air Wisconsin
Comair
Skywest Airlines


Thunderstorms
Cause Accidents and Delays

# New Radar Technology Identifies Type of Reflectors

# Automatic Data Fusion Provides One-Hour Thunderstorm Forecast



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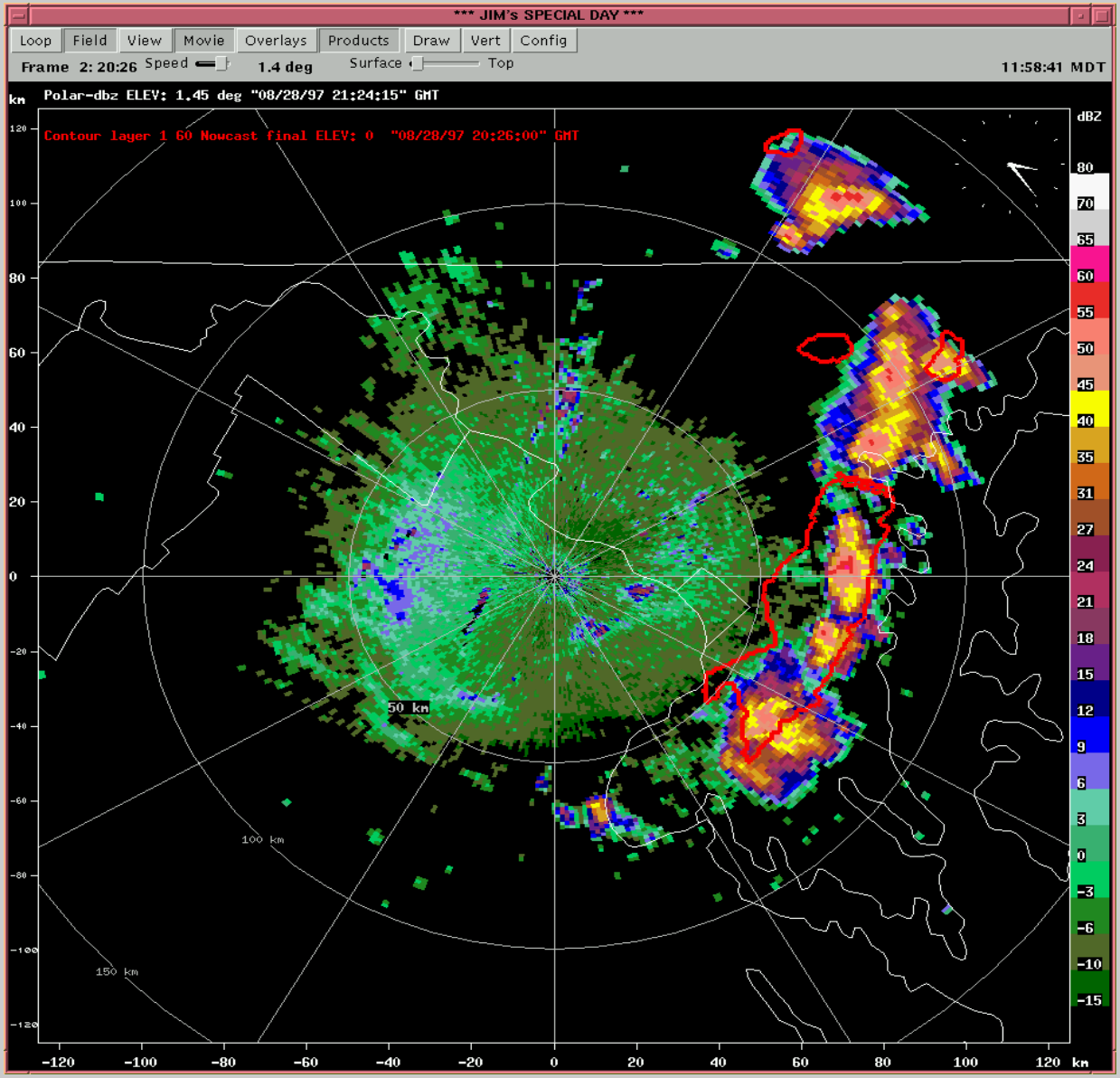
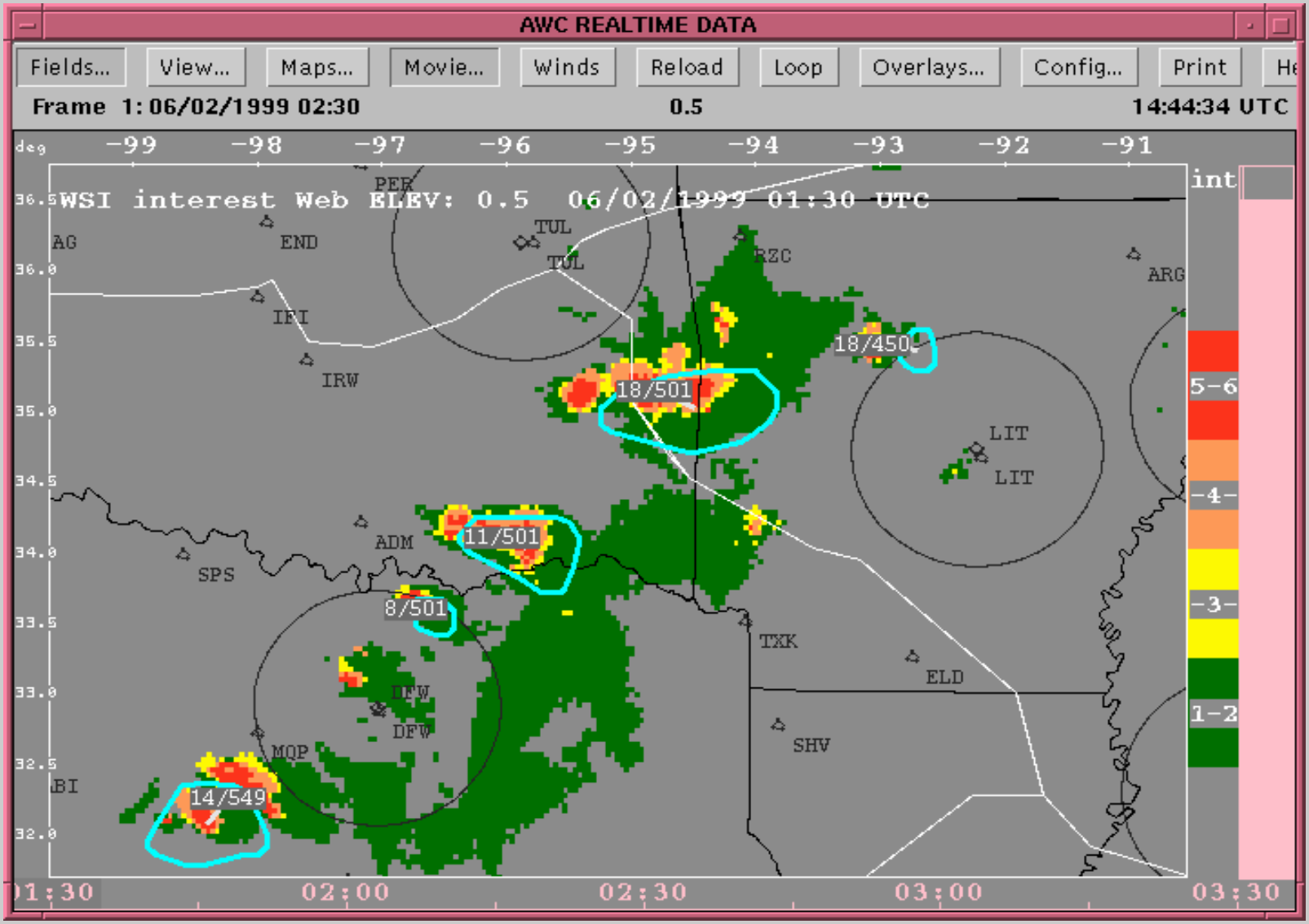
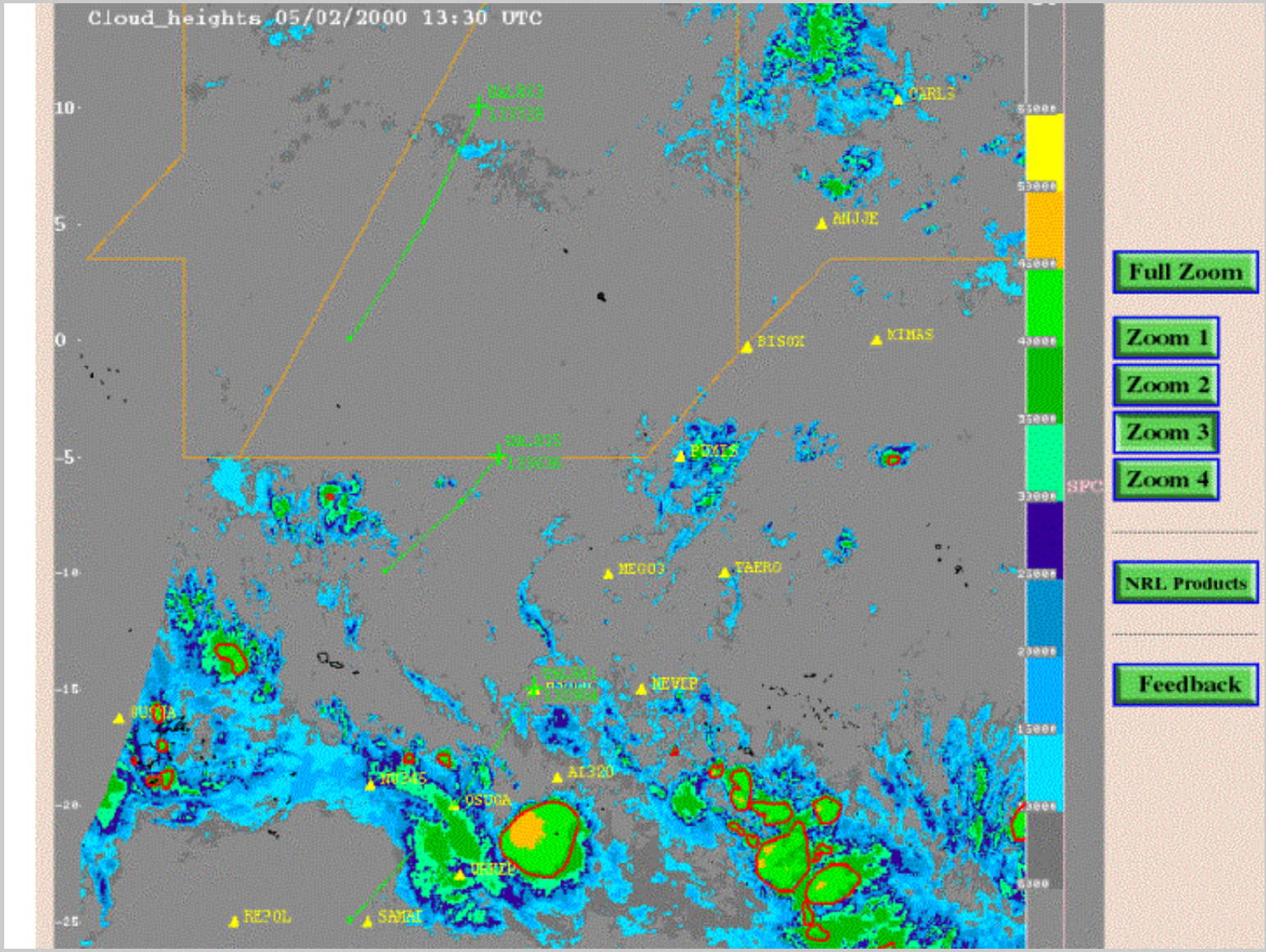


# Forecast for Little Rock Accident Provides Ample Warning



# Nowcast of Oceanic Thunderstorms Alerts Dispatcher, Controller, and Pilot



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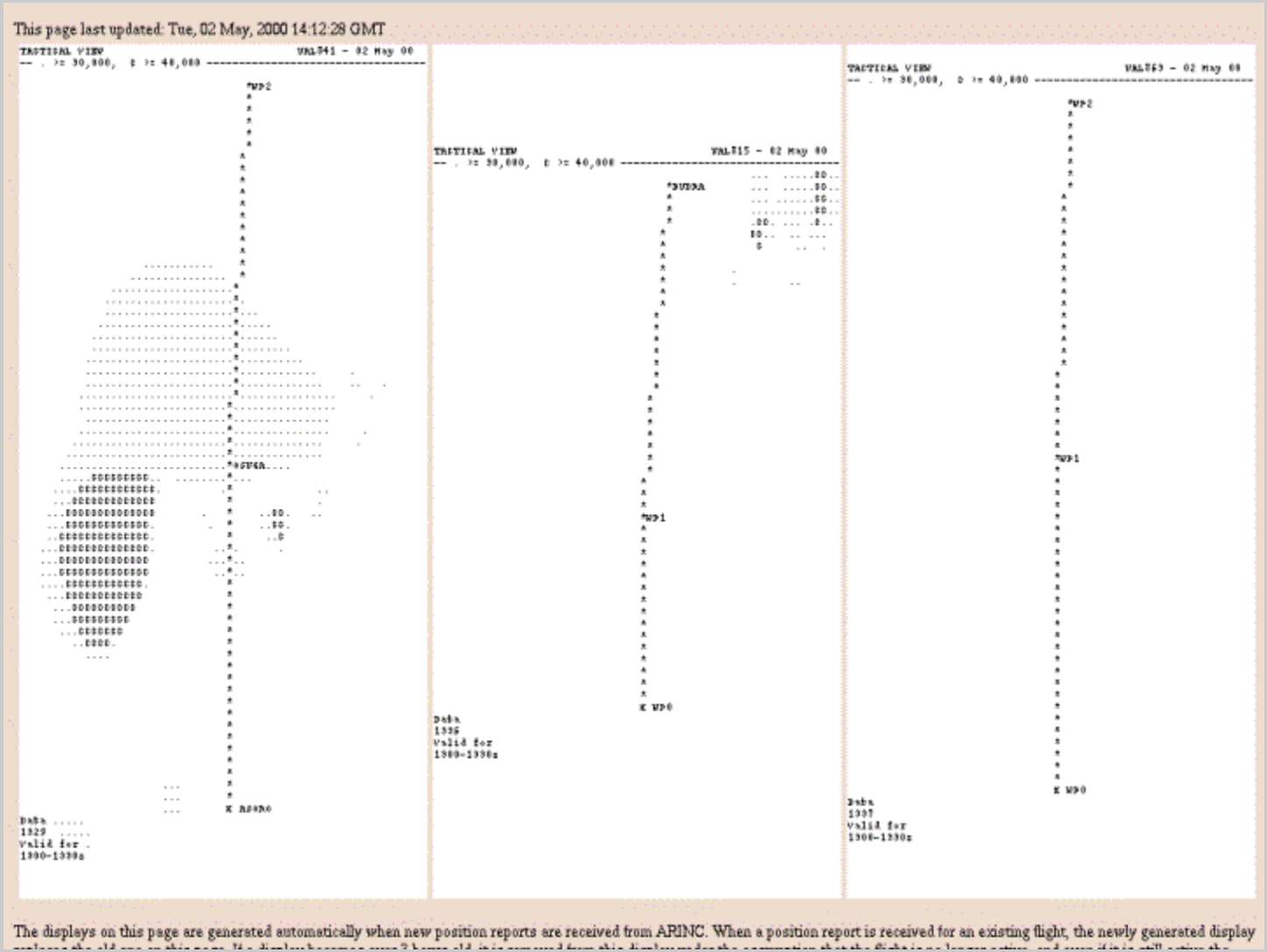
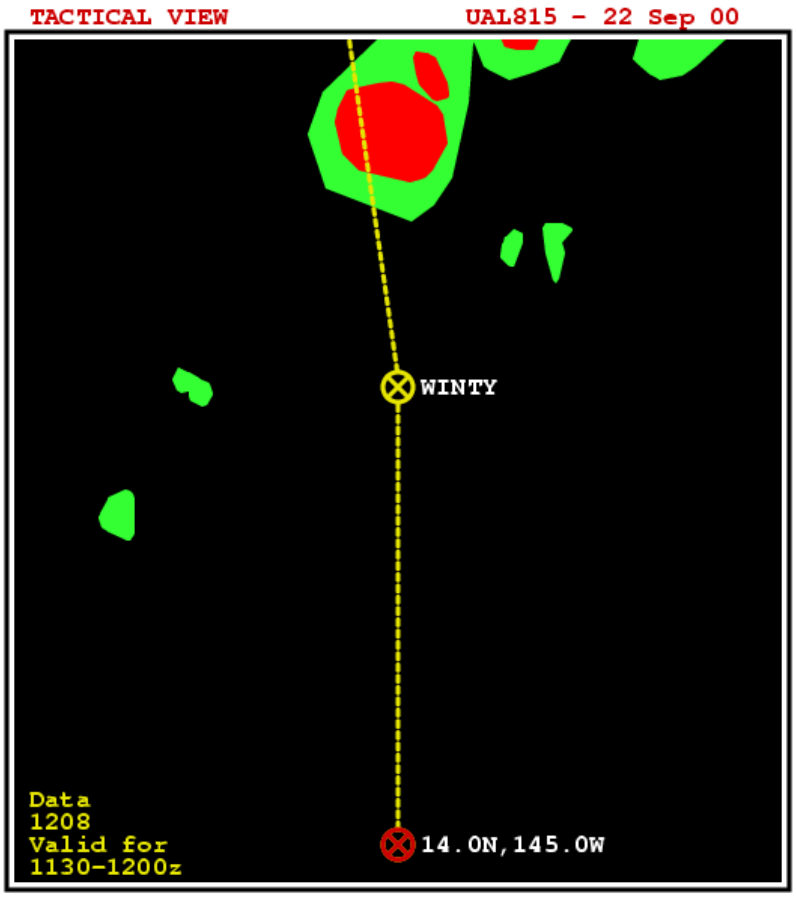
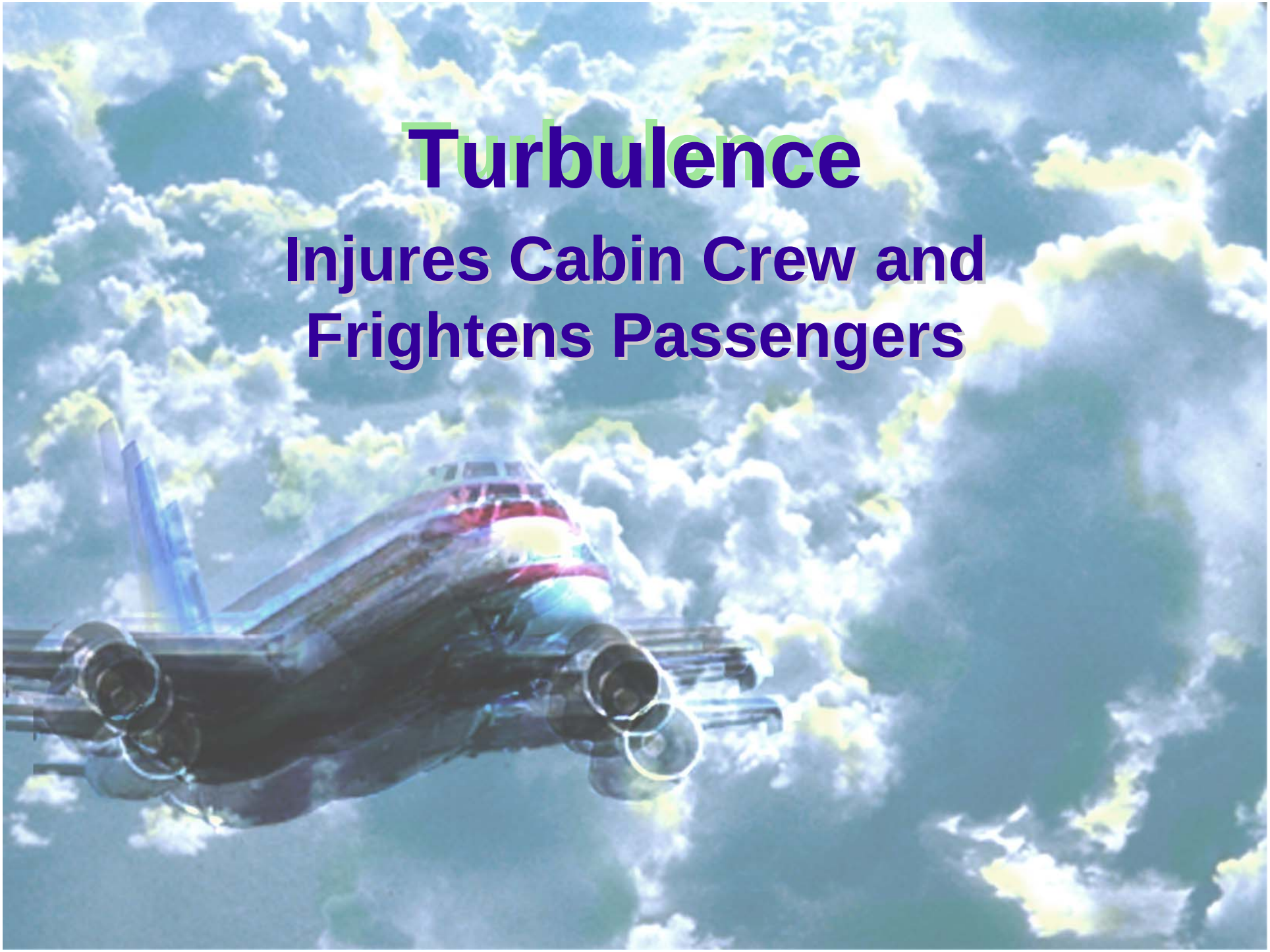



The displays on this page are generated automatically when new position reports are received from ARINC. When a position report is received for an existing flight, the newly generated display

# Nowcast of Oceanic Thunderstorms Alerts Dispatcher, Controller, and Pilot

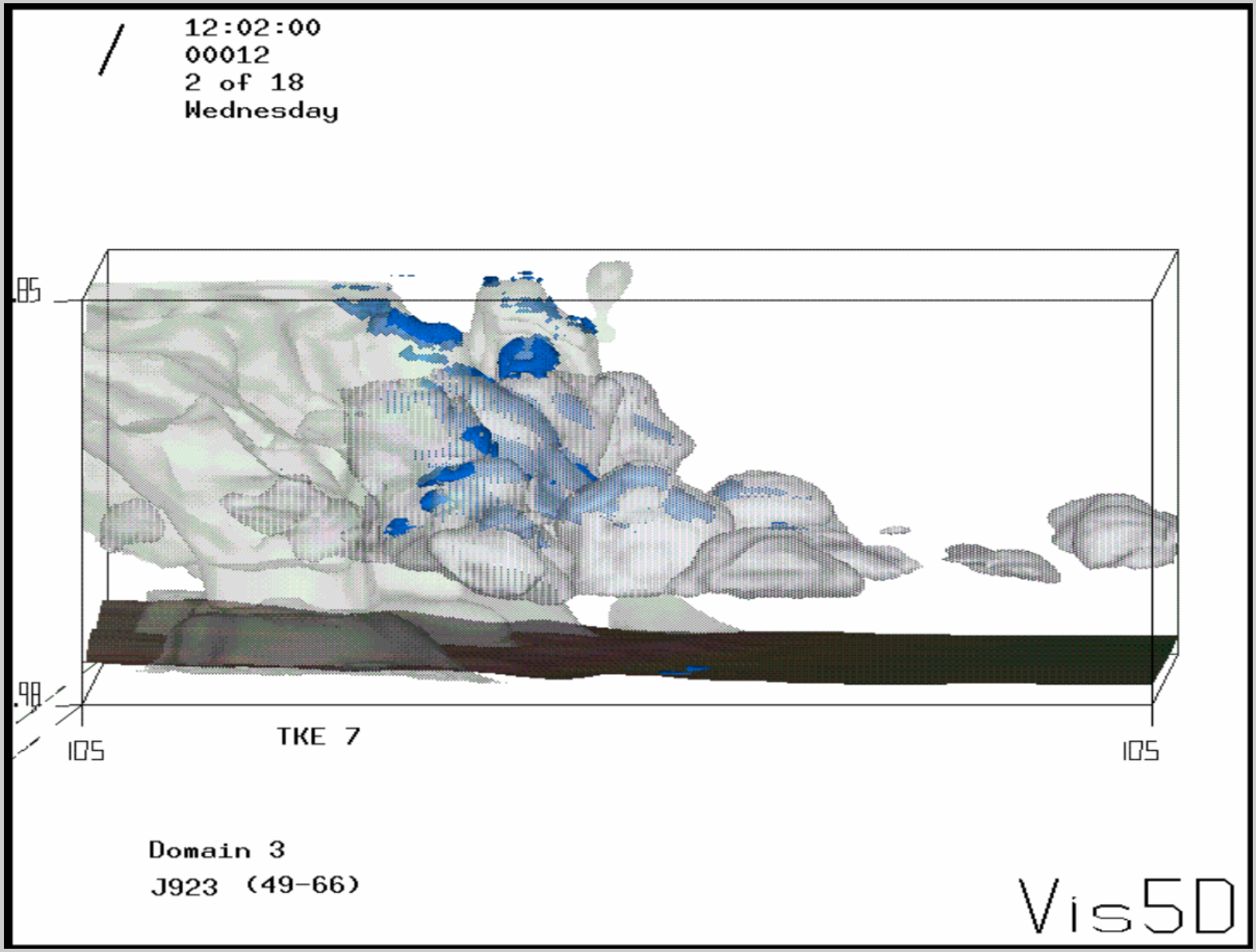



Turbulence
Injures Cabin Crew and
Frightens Passengers

# Improved On-Board Sensors Will See Turbulence Near Thunderstorms

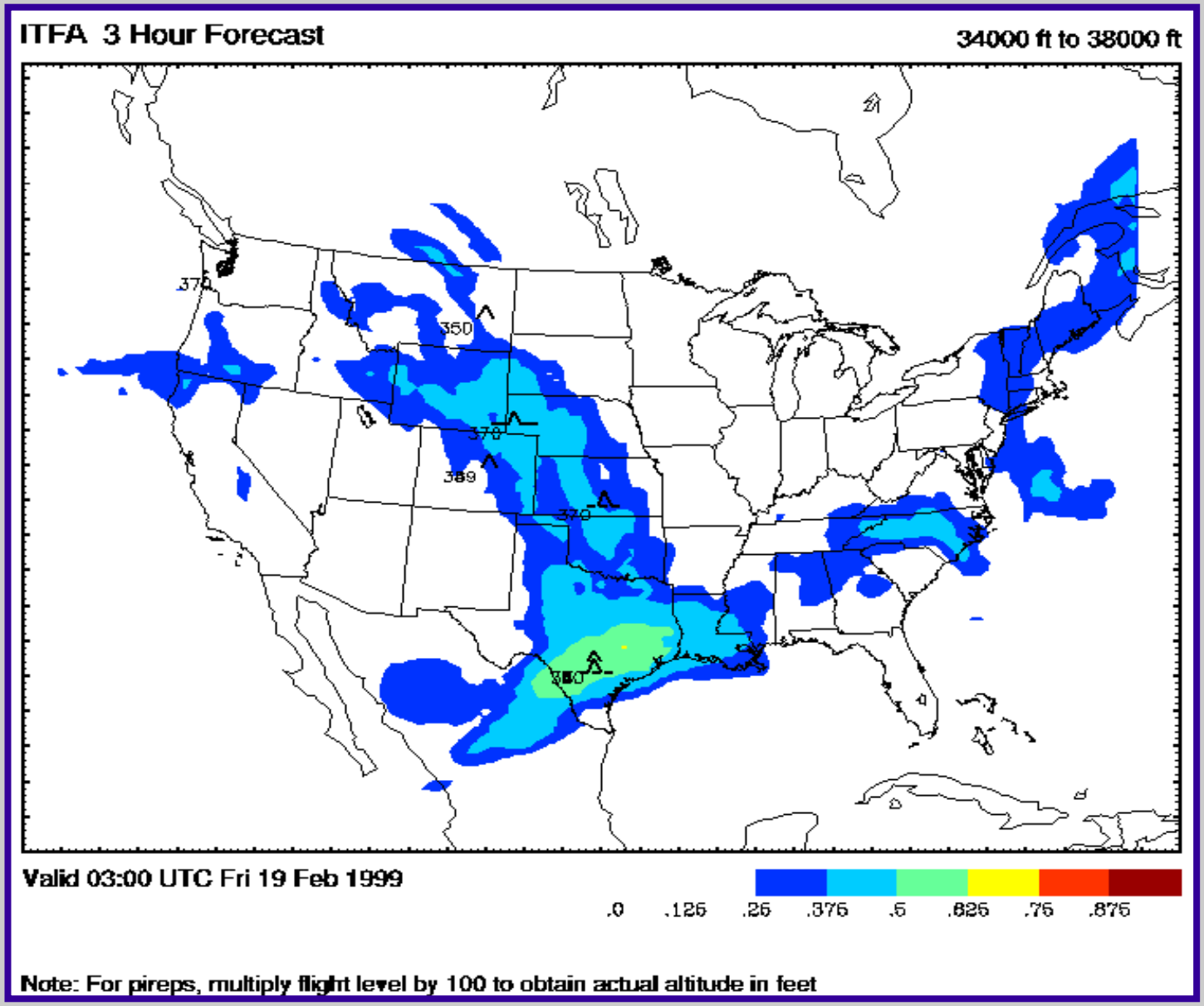
(mostly) Greg Thompson

# Powerful Modeling Techniques Are Providing Information About Turbulence in Thunderstorms



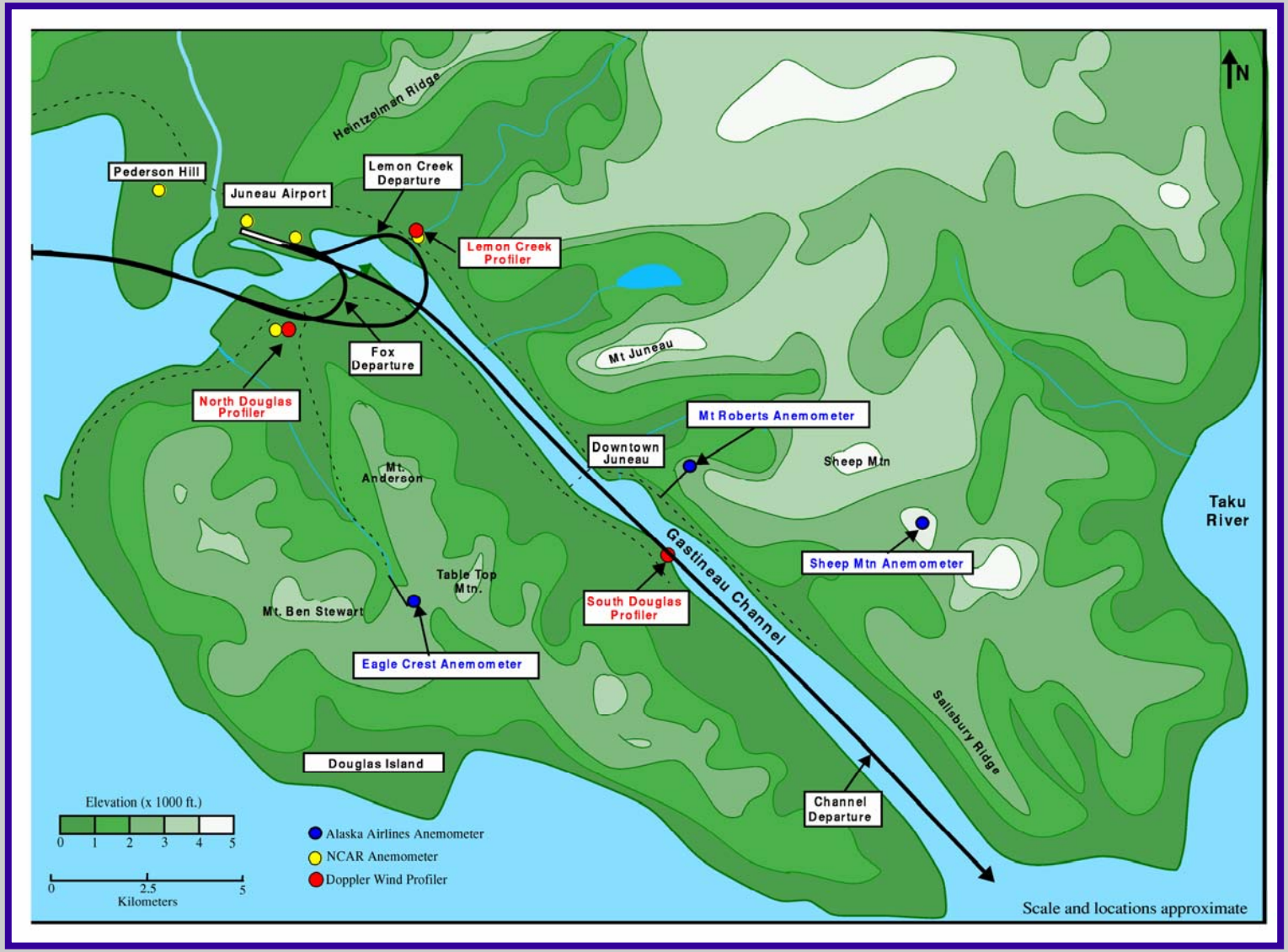
# Clear-Air Turbulence (CAT) is More Difficult to Detect

# Advanced Data Fusion Provides Improved Forecast of CAT

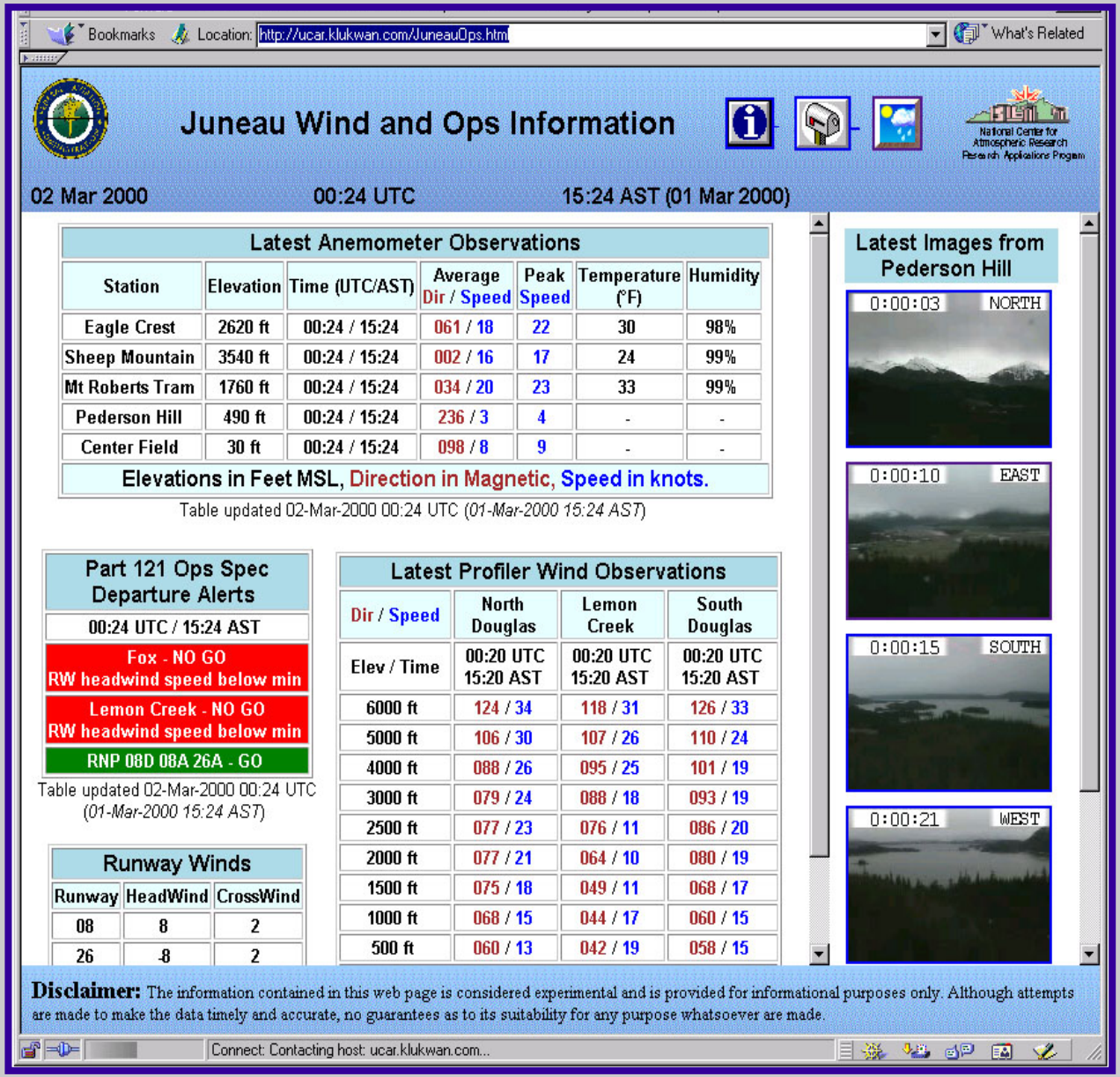


# High Winds Over Terrain Cause Problems at Many Locations

# Terrain-Induced Turbulence Is Common at Juneau



# FAA Is Developing an Alerting System to Improve Juneau Operations

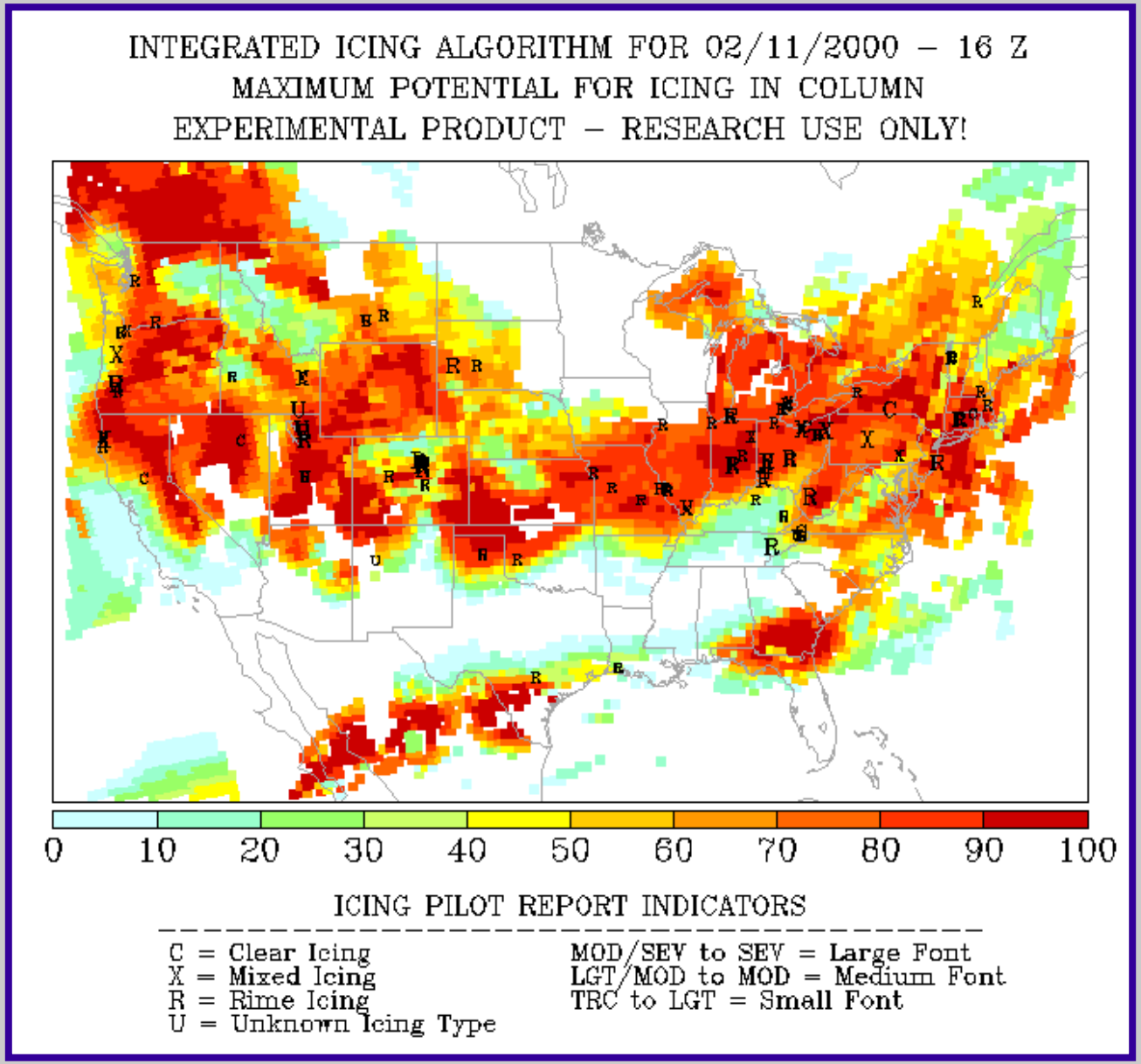


# Winter Weather

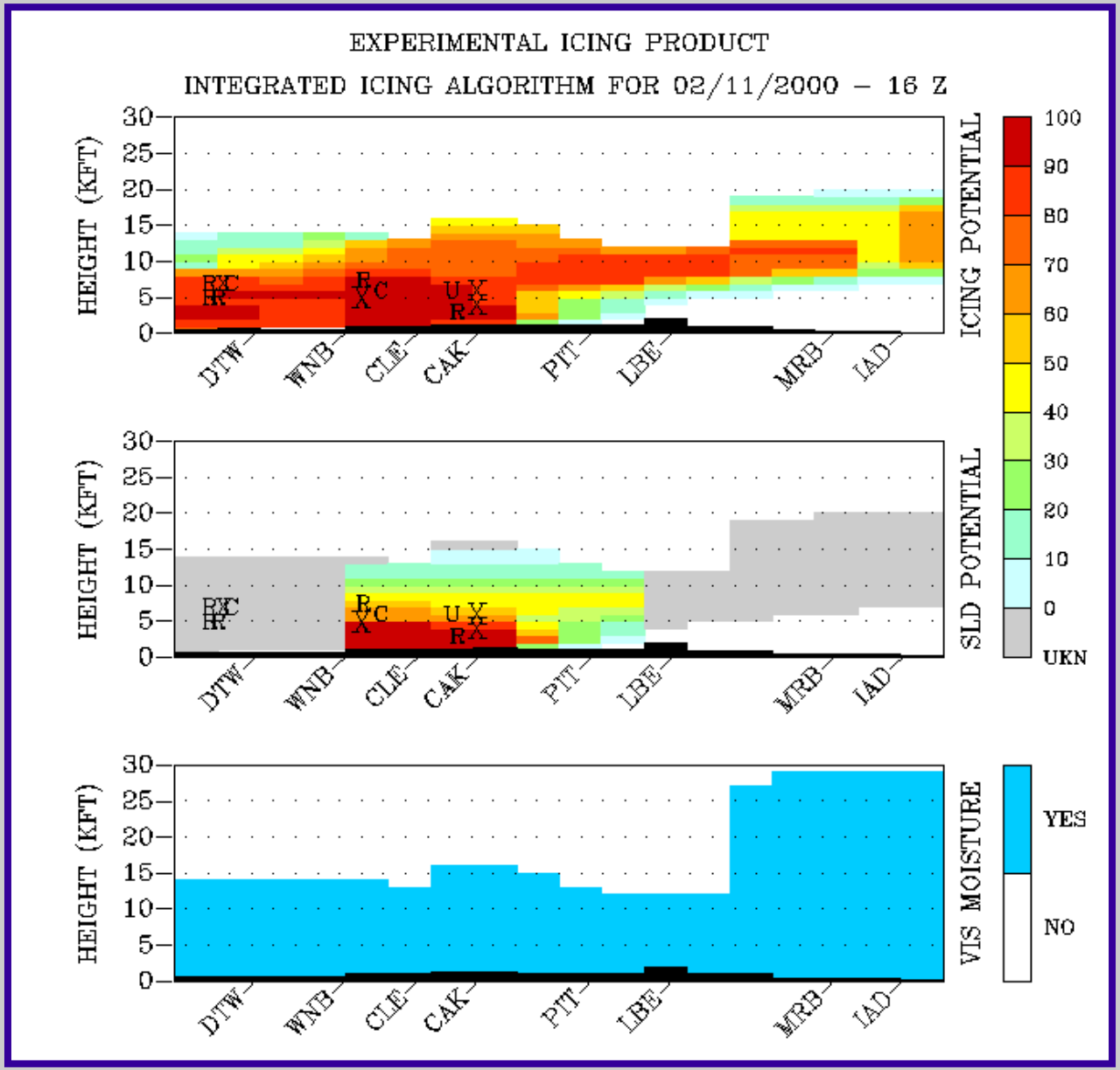
## Affects Aircraft In-flight and on the Ground

# In-flight Icing Causes Dangerous Loss of Lift and Control

# New Icing Product Depicts a Particularly Difficult Day

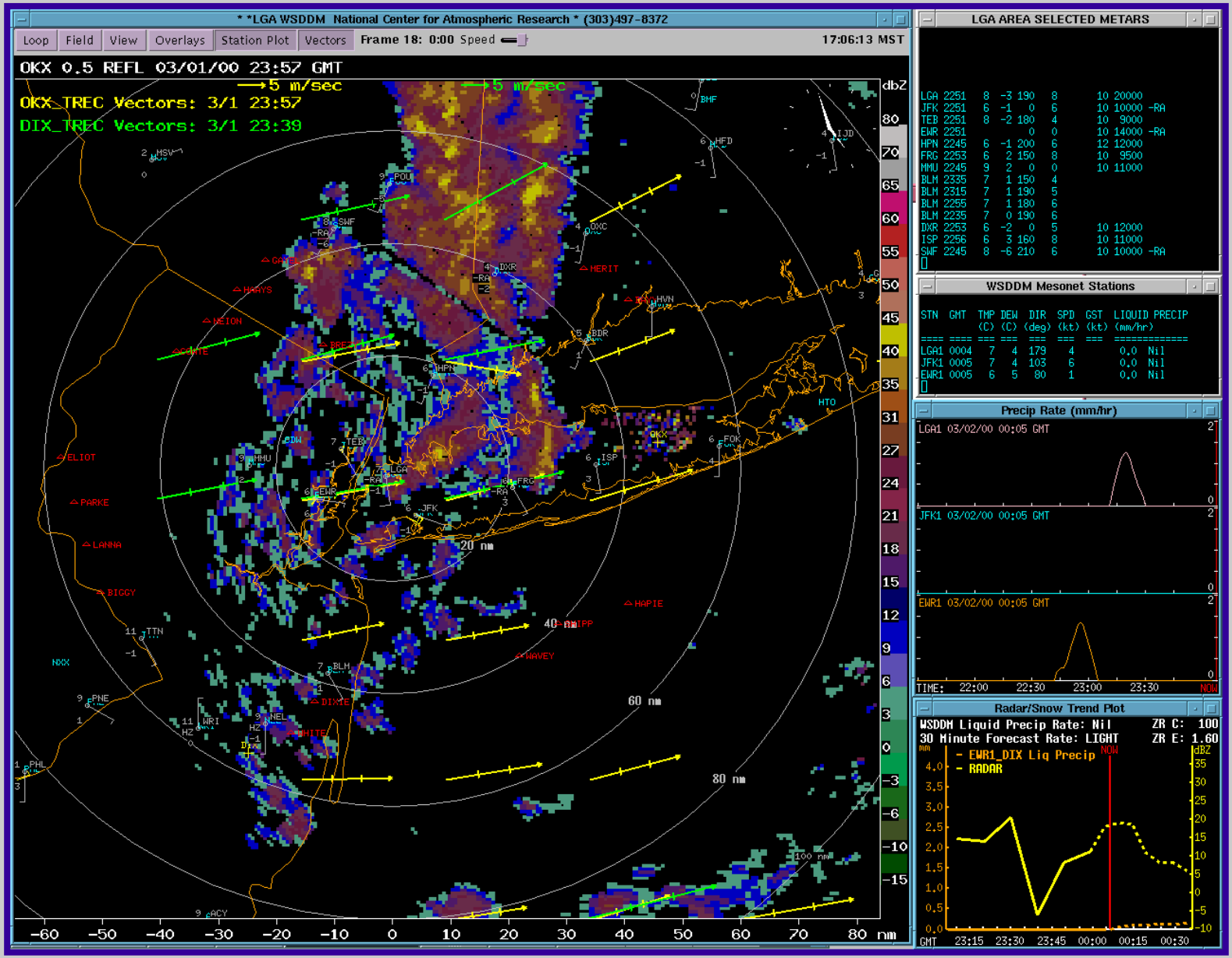


# Even on a Bad Day, Vertical Cross-Section Helps Provide Safe Operations



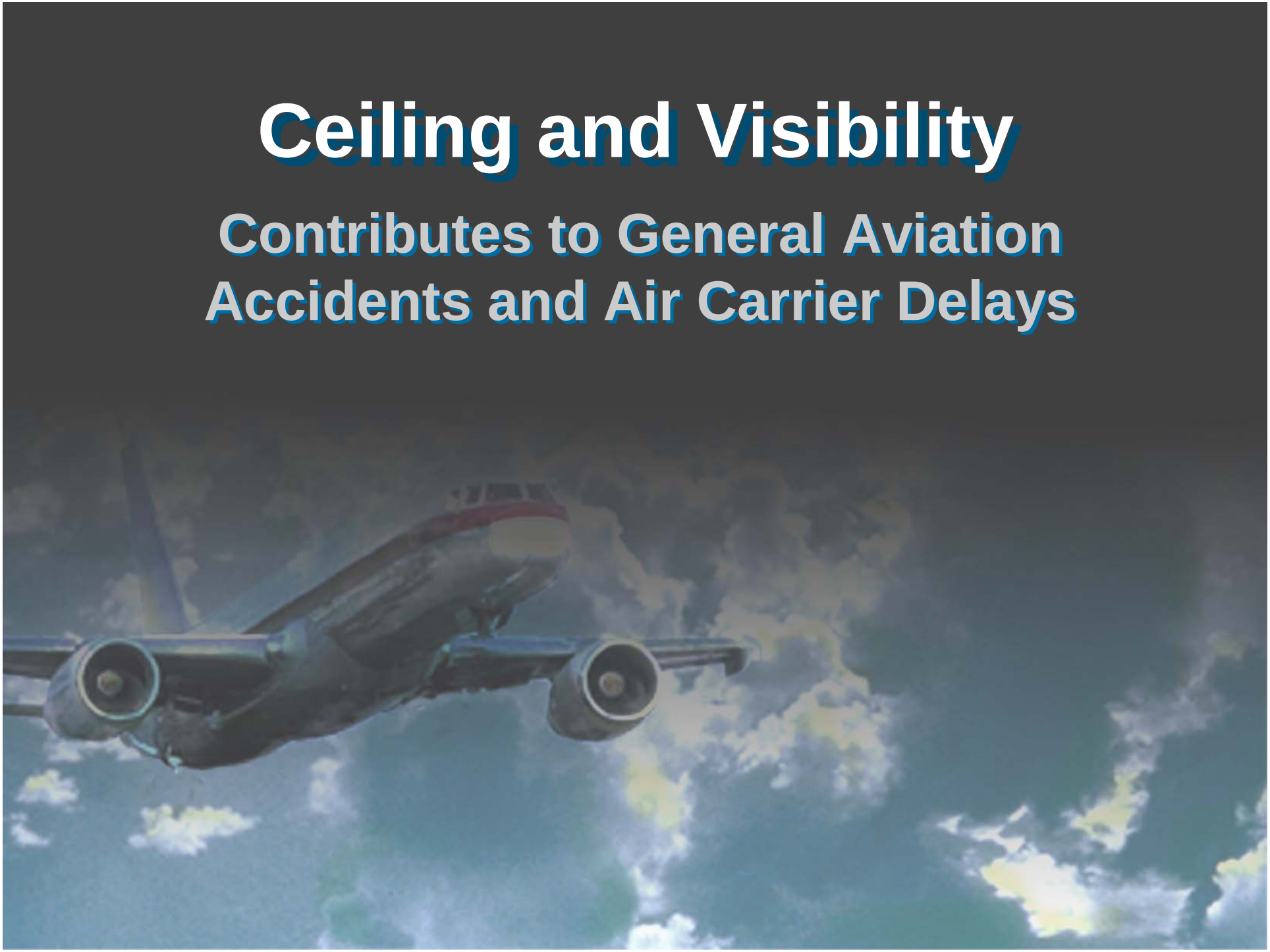
# To Depart Safely, Aircraft Must Be Free of Snow and Ice

# Safe and Efficient Deicing is Facilitated by New Decision Support System



# Ceiling and Visibility

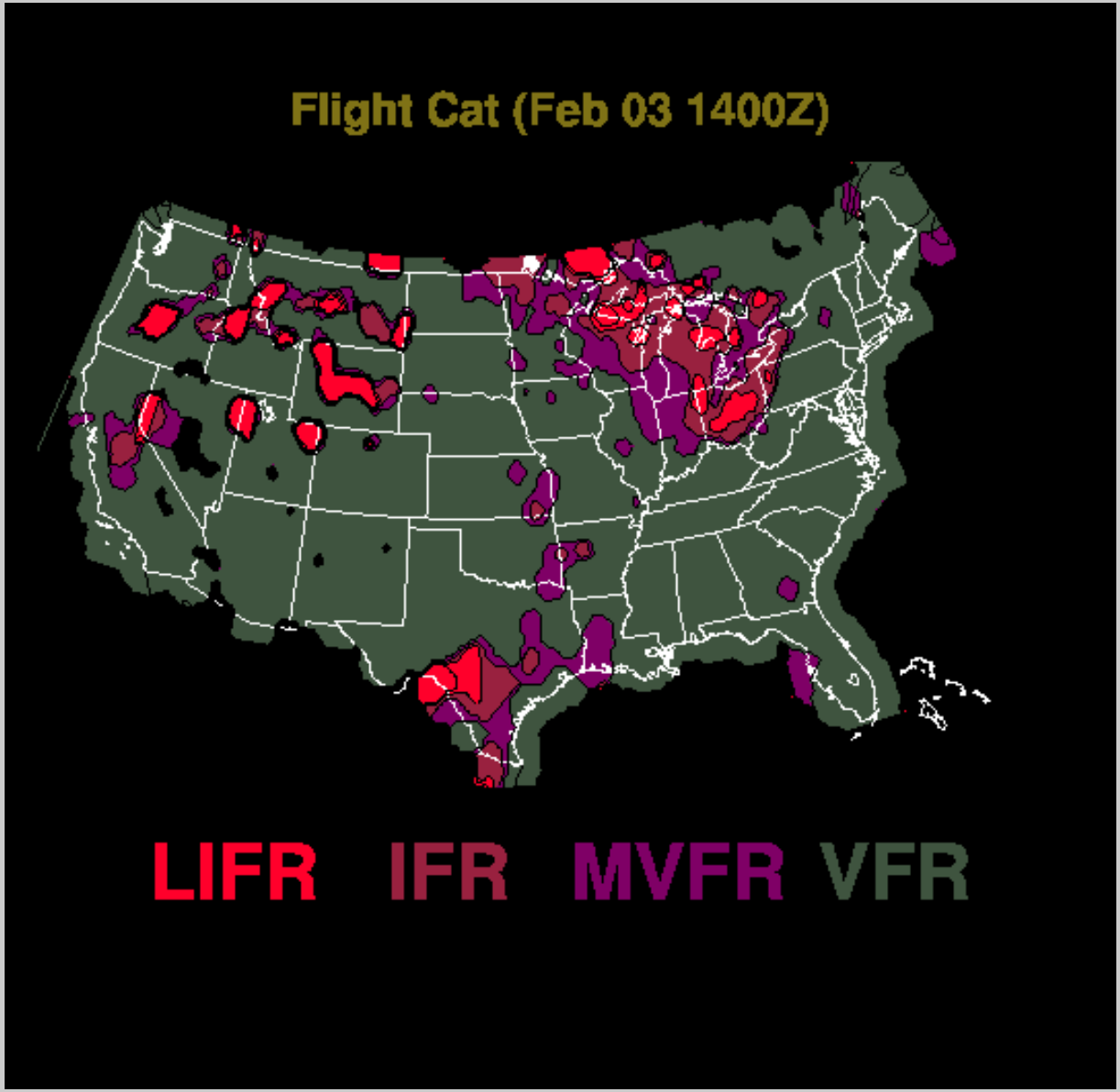
## Contributes to General Aviation Accidents and Air Carrier Delays

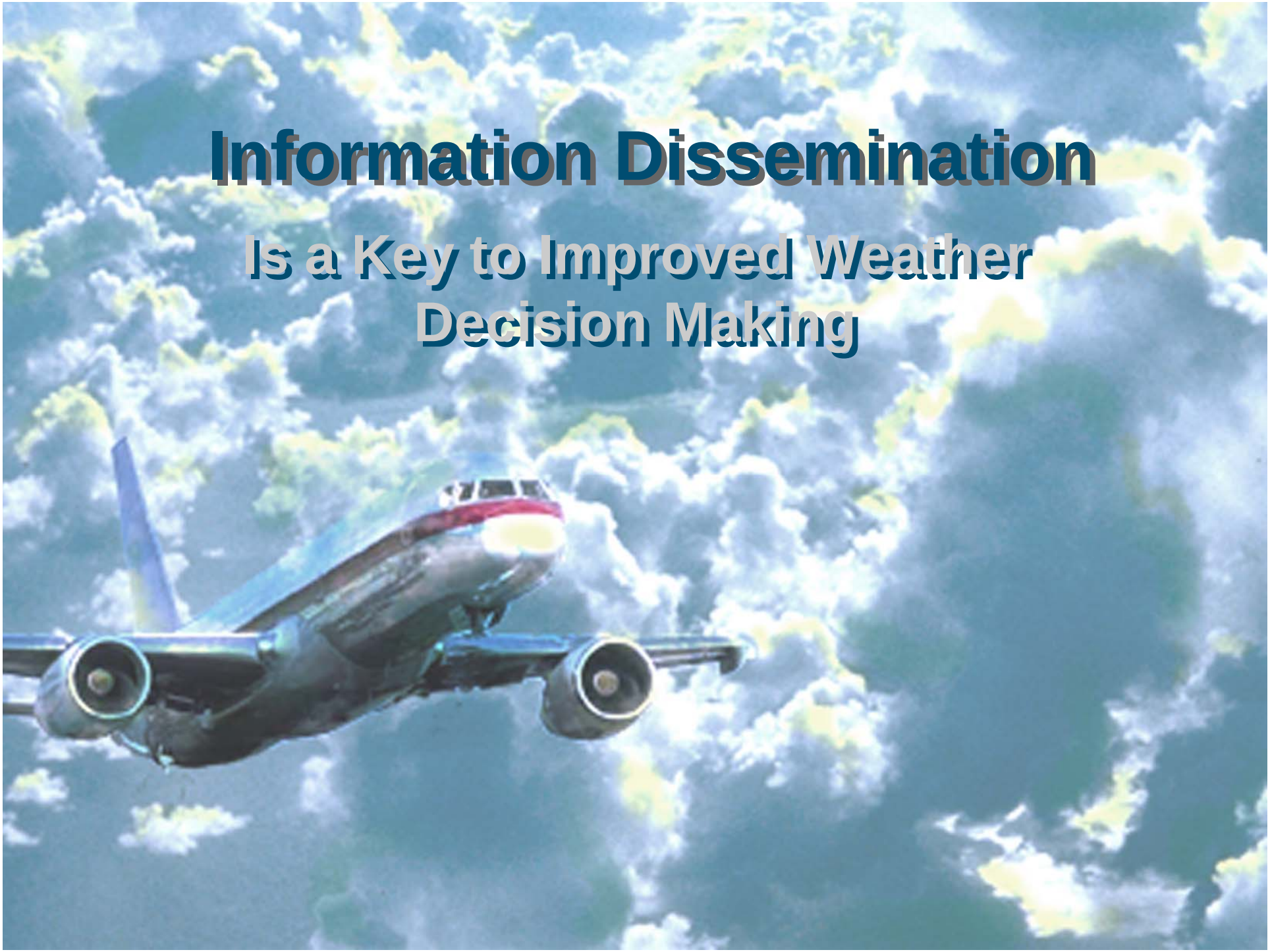


# Air Carriers at San Francisco Are Regularly Impacted by Low Ceiling and Visibility

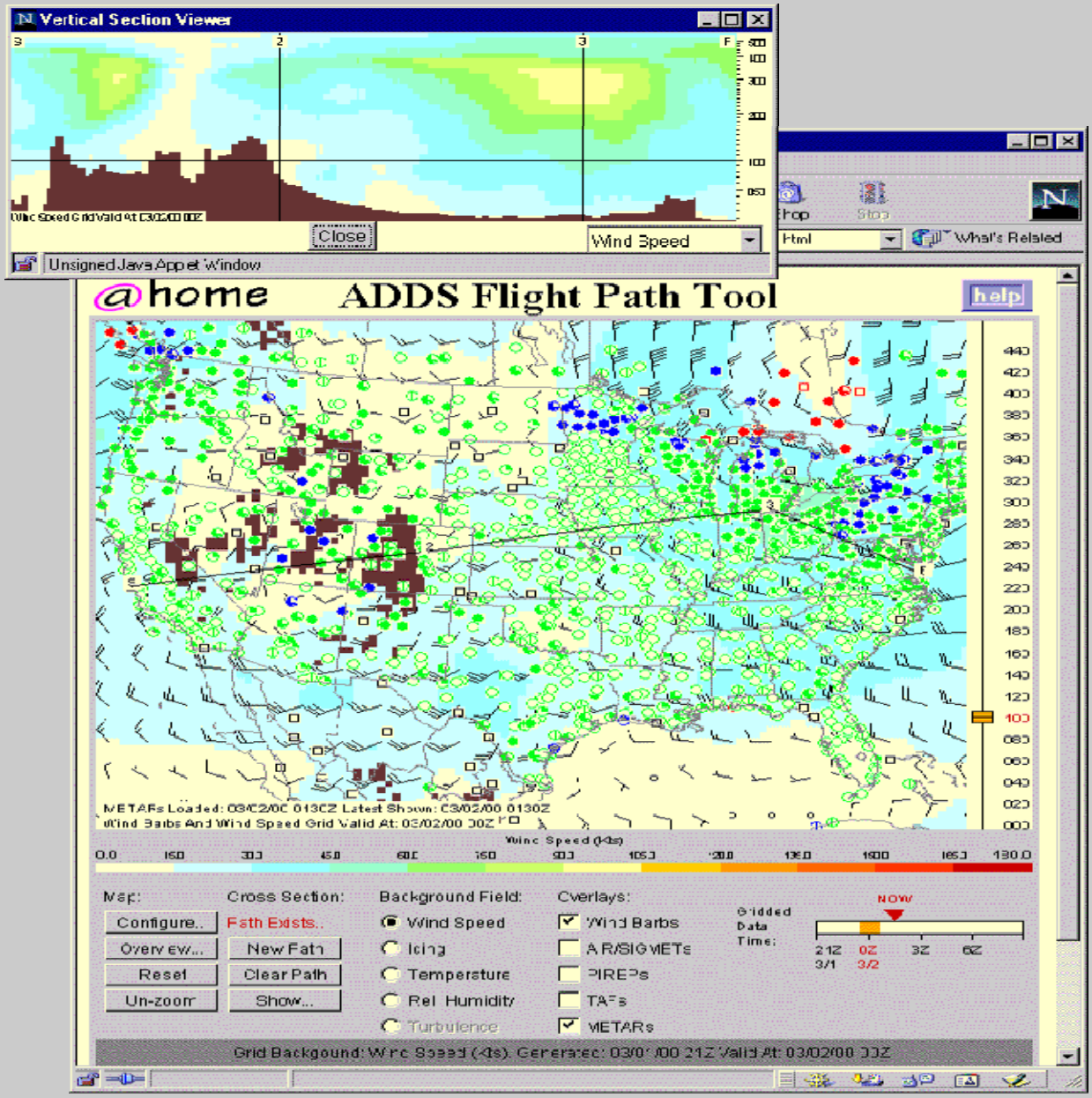
Darin Bishop

# General Aviation Ceiling and Visibility Problems Are More Route Oriented




Information Dissemination
Is a Key to Improved Weather
Decision Making

# The Internet Provides a Powerful Path to Make the Best Weather Tools Available to Aviation Users



# General Aviation Users Are Already Beginning to Have Improved Cockpit Decision Aids